

*A BRIEF HISTORY OF U. S. MARINE ENGINEERS

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As long as the Marine Corps was a relatively small organization with service on board ship in small units as its main function, there was little reason for the existence of the Marine combat engineer as we know him today. It was not until the Corps was increased in size sufficiently to make it possible to plan on placing a brigade of Marines in the field that engineers as separate units became a part of Marine organization. The assumption by the United States of a new role as a world power led to the assignment of advance base functions to the Corps. In order to carry out its new role, the Corps realized that engineering skills would be required; a new supporting force became necessary. Until this time each Marine in the field had performed his own field engineering chores or was assigned to perform elementary engineer tasks as a pioneer.

It has been said that the motto of the Marine engineers should be "Nothing is impossible with hand tools, it just requires more time." The complexity of the types of construction required by the development of weapons and field fortifications and the invention and development of steam, gasoline, and electric powered engineering equipment have emphasized the need for engineering specialists.

In 1896 just before the outbreak of the Spanish-American War, the Marine Corps had a strength of about 2,600; by 1899 the authorized strength was increased to 6,062. With this increase in size, engineers within the Corps became a necessity.

The services performed by Major Allen C. Kelton's battalion on the island of Guam served as an introduction to the engineering requirements of the Marine Corps during the new global period of American history. Kelton's battalion shipped out of New York on 22 April 1899, and arrived at Guam on 17 August to carry out its assigned mission of garrisoning a naval station to be established on this newly acquired island outpost. Major Kelton was appointed Public Works Officer by the base commander. In fulfilling this assignment, the Marine battalion installed a sanitary water supply system, built roads, erected a sawmill and ice plant, and improved the general sanitation. Yet, these activities were considered incidental to the main job of protecting the base. In some ways, this battalion was a forerunner of the defense battalion concept of World War II.

During 1912 and 1913, the first steps were taken to organize a separate organization within the Marine Corps for advance-base duty in conformity with its mission. Such an organization would require its own supporting troops.

As soon as practicable after the return of the 2d Provisional Brigade from Cuba in May 1913, the Advance Base School was re-established. In June 1913, Company H, Captain William L. Redles commanding, of the Advance Base Regiment was organized at the Marine Barracks, Philadelphia, Pennsylvania. This unit was assigned the dual functions of an engineer company and a machine gun company.

Later in the year the advance base brigade was formed at Philadelphia, consisting of the brigade headquarters and two regiments. The 1st Regiment was the fixed defense regiment and included the engineer company; the 2d Regiment was the mobile defense regiment.

In January 1914, the brigade participated in the advance base maneuvers at the island of Culebra. On the island itself the engineer company assisted in the preparation of gun pits for the fixed-gun-companies, blasting out sites for magazines, and helping to carry the heavy guns into the hills. Part of its work was to build light docks for unloading supplies.

Unfortunately for the development of the engineering company, conditions in Mexico required sending an expeditionary force to Vera Cruz. Company H, which had been redesignated as the 5th Company, 1st Regiment, Advance Base Brigade, sailed for Mexico on 15 April 1914 from New Orleans. On 22 April, the company's designation was changed to the 5th Company, 1st Regiment, 1st Brigade. The commanding officer was Captain Giles Bishop, Jr., assisted by First Lieutenant John Marston, III, and Second Lieutenant Richard H. Tebbs, Jr.

The 5th Company served in the Vera Cruz occupation as a rifle company and moved to Marine Barracks, Philadelphia, Pennsylvania, on 5 December 1914. The company was again assigned to engineering duty, but the outbreak of trouble in Haiti required that it be used as a rifle company in 1915, and it was used as a rifle company the following year in Santo Domingo.

The report of the Commandant for 1914 called attention to a need for new ratings with pay to match for the specially trained technicians being developed in the fixed defense regiment of the advance base brigade. He pointed out that such special consideration already existed in the Army.

Returning to the United States in December 1916, the company resumed its training engineering duties at Philadelphia only to have this program interrupted again in 1918 and in 1919 when the company was assigned occupation duty in Cuba.

During World War I, the Marine Corps units in the A.E.F. were infantry brigades, and necessary engineering duties were performed by Army elements.

In October 1920, various advance base units, including the engineer company, were transferred to the Marine Barracks,

Quantico, Virginia. The Corps was still larger than its pre-World War I size despite the post war reduction, and an engineer battalion was organized on 21 February 1921 from the 5th and 12th Companies. Captain Samuel C. Cumming was the first battalion commander.

The next year, on 1 April 1921, the engineer battalion was transferred to the 1st Regiment only to have the battalion organization disbanded the following month on 24 May 1921. The two engineer companies remained in the regiment as individual units.

On 22 April 1922, the 1st Regiment was disbanded, and shortly thereafter the two engineer companies were again constituted as a battalion with a headquarters company being organized on 7 June. From that time until 16 November 1927, the engineer battalion remained intact.

The year 1927 brought two calls for Marine assistance outside the country. One was for a brigade for Nicaragua, and the second call required a brigade in China to protect American lives and property. The need for troops forced the use of the 5th Company of Engineers which sailed for China on 17 April 1927, reaching Shanghai on 20 May 1927. In June, the engineer company was transferred to Tientsin. The commanding officer was Captain Frederick M. Howard with William J. Livingston, Clarence R. Wallace, and Louis E. Marie, Jr., as first lieutenants and E. J. Trumble, second lieutenant. The first sergeant was Frank Mortz.

While in China the 5th Company (Engineers) constructed a temporary bridge to replace one that had been washed away at Peichang, about 10 miles from Tientsin. This was replaced with a permanent bridge known as the "Butler Bridge," after Major General Smedley D. Butler, USMC. The company also assisted in the building of the so-called Sino-American Highway. Both were formally dedicated on 3 October 1928 and did much to develop good relations with the Chinese people and officials.

Subsequent to the shipping out of the 5th Company to China, the 12th Company Engineers, remaining at Quantico, was converted into a base maintenance company on 16 November 1927.

The Corps had not given up on engineer troops, but the requirements of the immediate missions made it necessary to again postpone the creation of an engineer battalion. Tables of organization were prepared and kept ready for such time as an East Coast Expeditionary Force could be reestablished.

During the Quantico period, the engineer units performed what were really post service functions, such as the operation of power plants, the operation and maintenance of waterworks, the control of heating plants and sanitary facilities, as well as

the construction and upkeep of roads throughout the reservation. The personnel were instructed in bridge building, demolitions, and the construction of wire entanglements. A map reproduction plant was operated in connection with the Marine Corps Schools.

The mission of Marine engineers depends upon the mission of the Corps, and the size of the Corps has determined the existence of Marine engineers as a separate organization. As of 1928, it was contemplated that a Marine engineer battalion would be equipped with blacksmith's tools, carpenter's equipment, sets of drafting equipment, map reproduction equipment, pipe-fitting tools, sign-painting equipment, surveying equipment, and tin-smith's equipment. Various motor vehicles were to be assigned to the unit. Specialty vehicles included a gasoline truck, a water purification unit, and a wrecking and spare parts truck.

The 5th Company (Engineers) returned to the United States from China on 8 March 1929 and was disbanded 31 August 1932.

On 8 December 1933, the Fleet Marine Force was organized in accordance with Navy Department General Order 241 as the successor to the Marine Corps Expeditionary Force. As part of the gradual development of a well-rounded Fleet Marine Force, a force engineer company was organized at Quantico, Virginia on 1 April 1935. It consisted of one officer (Captain Howard R. Huff) and 40 men. These men's specialties included plumbing, drafting, carpentry, painting, and mechanics. The company's designation was changed on 18 September 1935 to the Engineer Company, 1st Marine Brigade, Fleet Marine Force.

The following year, on 10 June 1936, another engineer company was activated at the Marine Corps Base, San Diego, California. It was first designated as the 2d Engineer Company, Fleet Marine Force, but two days later was redesignated the 2d Engineer Company, 2d Marine Brigade, FMF. The commanding officer of the new unit was First Lieutenant Robert E. Fojt, who had formerly been with the 1st Engineer Company, FMF, at Quantico. The unit started with an enlisted strength of 37 men. During August 1936, another officer was assigned to the company, Second Lieutenant Victor H. Krulak.

The command of the 1st Engineer Company had, in the meantime, passed from Captain Huff to Captain Norman E. True (14 October 1935), and to First Lieutenant Francis M. McAlister (5 May 1936--promoted captain 30 June 1936). Second Lieutenant Harry A. Schmitz, who had been a one-man Marine Engineer Detachment at the Army's Wright Field earlier in 1936, joined the 1st Company by December 1936.

In 1940, the Marine Corps was thinking in terms of Marine brigades/divisions each with an engineer battalion. The brigade consisted of 7,558 officers and men, of which 508 comprised the engineer battalion. The Marine Corps had adopted the equipment and methods of the Army Corps of Engineers. With

the Army's cooperation, it had been possible to send a Marine officer to the regular officers course at Ft. Belvoir, Virginia each year as well as to send Marine enlisted men to attend the Army Engineers' enlisted specialist courses. Details of Marine officers were sent from time to time to the Army's 29th Engineer Regiment for practical field training while an exchange of information with the Engineer Board at Ft. Belvoir was established.

On 1 March 1940, the 1st Engineer Company was redesignated Company A, 1st Engineer Battalion, 1st Marine Brigade, FMF. On the same day, the 2d Engineer Company at San Diego was redesignated as Company A, 2d Engineer Battalion, 2d Marine Brigade, FMF.

The new engineer battalions were soon organized. The H&S Company of the 1st Engineer Battalion was activated 24 February 1941 at Guantanamo Bay. Previously, Company B was activated 5 November 1940, and Company C was activated 21 January 1941. The fourth company, D, was not activated until 15 December 1941 at New River, just eight days after Pearl Harbor.

At San Diego, the organization pattern was similar. Company A, the former 2d Engineer Company, was joined by a new H&S Company, but not until 1 November 1940. Two companies, B and C, were activated on 6 December 1940. Eleven days after Pearl Harbor, the battalion's Company D was activated on 18 December 1941.

With the Marine Corps in 1940 thinking in terms of task groups, it was anticipated that each task force would require the assistance of a platoon to a company of engineers. Among the needs to be met by Marine engineers were the supply of maps, surmounting of beach obstacles, clearing of egress from the beach, pier construction, water supply, grading of aviation fields, and demolition. The Marine Corps engineer was considered a "combat" engineer, and his combat equipment included rifles and machine guns.

An Engineer Training Center established at Quantico in November 1940 offered special courses in water distillation, refrigeration, demolitions, camouflage, and the erection of Quonset huts. The increasing need for qualified engineers in the Marine Corps led to the activation on 8 May 1941 of an Engineer School at Quantico. The outbreak of World War II and the consequent large increase in the size of the Corps brought the thinking on Marine engineers past the platoon, company, and battalion stage into the regimental stage.

Prewar landing operation exercises indicated that one of the most serious problems that had to be solved was the handling of supplies on the beaches. Even the maneuvers of January 1941 showed that the "beach party" and the "shore party" provided for in the Tentative Landing Operations Manual simply did not spring into being just because they were prescribed. One Marine officer

summed it up with the remark, "The combination of the parsimonious years and our own apathy had left us next to helpless where logistics were concerned."

On 1 August 1942, it was agreed that the former separated beach and shore parties would be joined together as the Shore Party, a component part of the landing force. The responsibility for unloading boats at the beach was transferred from the naval element to the landing force element of the shore party.

To meet the obvious labor shortage, the Marine Corps created on 10 January 1942, a new pioneer (shore party) battalion of 34 officers and 669 enlisted men for the Marine division. Unfortunately, this change came too late for practical experience in large-scale landing exercises, and the training was acquired under the hard taskmaster of actual combat conditions. The functions of the pioneers in their capacity as a shore party were the control of stragglers and prisoners, the selection and marking of routes inland, the movement of supplies and equipment off the beaches, and the assignment of storage and bivouac areas in the vicinity of the beach.

With the need for supporting troops for each Marine division, a pioneer battalion and an engineer battalion were combined to form the nucleus of an engineer regiment for each Marine division. To round out these regiments, a naval construction battalion (Seabees) was added. The Tables of Organization called for an engineer regiment to consist of 74 officers and 1,548 enlisted Marines and 35 officers and 860 Navy personnel, a total of 109 officers and 2,408 enlisted men. Four engineer regiments were organized in this manner, the 17th, 18th, 19th, and 20th Marines.

Although the new organizations were regimental in structure, the requirements of the type of warfare being waged resulted in the frequent use of small units, even down to company or platoon size. Each regimental combat team was usually assigned one company each of pioneers, engineers, and Seabees, giving a cross-section of engineer support.

In addition to these organizations, there were several separate engineer battalions formed as well as separate engineer companies. The importance of building and maintaining aircraft landing facilities led to the establishment of special aviation engineer battalions. Special engineer functions were performed by force engineer units, usually of company size.

On 9 July 1942, the Commandant approved the establishment of an engineer service in the Marine Corps. This service was "to coordinate and administer all engineer activities and to maintain close liaison with the Engineer Services of the Navy and Army." It was further reported that engineer regiments had been established in each Marine division and the necessary trained engineer personnel had been furnished to, or designated by, other FMF organizations and posts and stations. Approximately

460 officers and warrant officers as well as approximately 6,000 enlisted men were either on engineer duty or in training.

The Commandant further reported that the Engineer School on the East Coast had been transferred from Quantico to Camp Lejeune, North Carolina, and enlarged to a training battalion with an increased scope of training. On the West Coast, an Engineer Training Battalion had been established at Camp Pendleton offering general and specialized engineer training.

The Marine engineers in World War II were truly combat engineers. Amphibious assaults were put to the acid test by combat with the Japanese on the Pacific islands, and the engineer troops were interchangeably infantry and engineers.

The Marine engineers were in the war from Pearl Harbor on. Early in the raid, trucks and working parties of the 2d Engineer Battalion were sent 27 miles up in the hills to Lualualei to pick up some 3-inch shells. Other engineers took their heavy earth-moving equipment to Hickam Field where they were used to help clear the runways.

The 1st Engineer Battalion (less Company B), the 1st Pioneer Battalion, Company A, 2d Engineer Battalion, and Company A, 2d Pioneer Battalion, all participated in the landing at Guadalcanal on 7-9 August 1942. On 18 September 1942, they were joined by Company B, 1st Engineer Battalion.

The engineers were faced with a special handicap by the premature departure of the transports before their bulldozers, power shovels, and dump trucks could get ashore. This constituted a severe handicap to the completion of the airfield and its defenses. Fortunately, a considerable amount of Japanese engineering equipment was captured in an undamaged, or relatively undamaged, condition and was utilized in completing the airstrip.

The thin Marine defense line on Guadalcanal included a 9,000 yard stretch to the south of the airstrip which was outposted by men from the artillery, pioneer, engineer, and amphibian tractor battalions. These men carried out their special duties during the day and doubled as infantrymen at night.

Within eight days after landing, Marine engineers had filled the gap in the center of the landing strip begun by the Japanese and were in the process of lengthening the field from 2,600 feet to nearly 4,000 feet. On 18 August 1942, the airstrip was completed and declared usable by fighters and dive bombers.

"Marine engineers rigged a system of lights from captured Japanese equipment to outline the field for emergency night landings; and, when dump trucks and pneumatic tampers came in later, workers could fill a 500 kilogram bomb crater in 30 minutes.

Dump trucks were kept loaded with gravel and sand, and "flying squads" of engineers rushed out to repair any damage immediately after the departure of Japanese bombers."

On 9 December 1942, the command of the troops on Guadalcanal was passed from Major General Alexander A. Vandegrift, USMC, to Major General Alexander M. Patch, USA. The bulk of the Marine force was withdrawn at this point, but two new Marine engineering units arrived to improve the air facilities on the island. These were the 1st Aviation Engineer Battalion on 1 December 1942 and the 2d Aviation Engineer Battalion on 30 January 1943.

On the island of New Britain on 3 January 1944, the engineers of Company C, 1st Battalion, 17th Marines faced the problem of getting the armor forward to breach Japanese defenses. A day's hard labor resulted in a corduroy road across the coastal swamp to the Kunai fields. In the late afternoon, three Sherman tanks were brought up, but it was necessary for the engineers to cut a passage for the tanks through 12-foot high stream banks. Two drivers were shot out of the seat of an unarmored bulldozer that was called up to cut down the stream bank. A third engineer volunteer managed to operate the machine by crouching in a sheltered position and manipulating the controls with a shovel and axe handle. By nightfall the engineers had cleared the way for a tank-led attack. This was combat engineering.

The landing on Iwo Jima on 19 February 1945 and the subsequent 36 days of combat ultimately involved the engagement of 80,000 Marines. Providing water on this island was a major problem. The defending Japanese had relied upon rainfall gathered in concrete cisterns, but the concussions caused by intense bombardment cracked the cisterns resulting in the loss of much of this stored water. The 4th Engineer Battalion landed distillation units on D+5, and on D+6 the first unit was producing at the rate of 1,500 gallons per day. From D+6 to D+10 the battalion produced an estimated 35,000 gallons. At times as many as 16 distillation units were in operation even though the maintenance was difficult because the heavy mineral content of the water scaled parts of distilling equipment.

The story of the 5th Engineer Battalion on Iwo Jima was a story of building roads, even ahead of the assault troops, of blasting, cutting, bulldozing, and sealing (they destroyed an estimated 5,000 caves and pillboxes), of struggling with heavy equipment across mined beaches under fire, and of road maintenance under enemy observation. As many as 1,000 caves and underground entrances were blasted shut on Mt. Suribachi alone. For this operation the three engineer companies were distributed among Regimental Combat Teams 26, 27, and 28, with the Headquarters and Service Company under the command of the battalion commander.

The combat Marine engineer was described as the man who volunteered for nothing, but worked the clock around. He said he was a super-Marine because he was an engineer.

In September 1947, another peacetime year for the Corps, various redesignations of units were ordered, but the basic structure of an engineer battalion for each division was maintained. The engineer battalion at Camp Lejeune of 15 officers, 9 warrant officers, and 624 enlisted men was designated as the 2d Engineer Battalion, 2d Marine Division, FMF. In addition, the 2d Separate Engineer Company, FMF was at Quantico. In the 1st Marine Division based at Camp Pendleton was part of the 1st Engineer Battalion, 1st Marine Division, FMF. Only the H&S Company and two platoons were physically at Pendleton. Company A (less one platoon) was at Guam with the 1st Provisional Marine Brigade. Company B (less one platoon) was stationed at Tsingtao, China along with a provisional engineer platoon. The 1st Engineer Battalion plus the provisional platoon in China had a combined strength of 16 officers, 9 warrant officers, and 662 enlisted men.

Following a period of peace with the usual postwar reduction in Marine Corps strength, the Korean War burst forth on 25 June 1950 with the crossing of the 38th parallel into South Korea by the North Korean forces. President Truman acted promptly against aggression and on 29 June authorized General MacArthur to send ground troops to Korea. The immediate need for troops brought a request from General MacArthur on 2 July for Marines, and steps were immediately taken to organize and ship the 1st Provisional Marine Brigade from California. Included in this brigade was Company A of the 1st Engineer Battalion (Reinforced), totaling 8 officers and 209 men, commanded by Captain George W. King. Much of their early work in Korea consisted of disarming the enemy's mines and setting out our own protective mines.

In order to carry out the planned Inchon landing of 15 September 1950, the Marine Corps called up its reserves and proceeded to organize the 1st Marine Division (Reinforced). This called for the 1st Engineer Battalion (less Companies A and D) commanded by Lieutenant Colonel John H. Partridge. Company A was already in Korea with the 1st Provisional Marine Brigade, and Company D was on its way from the Mediterranean where it had been serving as part of a 2d Marine Division task force. The battalion's total strength was 1,180.

On 18 November 1950, it was men from Company D, 1st Engineer Battalion, who tackled the job of hacking out a runway when enlarging the Hagaru airstrip. This work was done under the handicap of frozen ground. It was so difficult for their heavy equipment to "bite" into the frozen earth that steel teeth were welded to the blades. When the pan was filled, the earth froze to the cutting edges and could be removed only by means of a

jack hammer. Work was carried on at night under flood lights. On the night of 28 November, a few Chinese broke through the perimeter and fired upon the Marines operating the dozers. Arming themselves, a group of Company D engineers counterattacked, cleared the enemy from the airstrip area, and then resumed their work under the floodlights.

On 1 December, the airstrip had been improved enough to permit larger planes to use it, and the flying of supplies in and casualties out was begun. It had taken the engineers just 12 days and nights to hack this airstrip out of the frozen earth. Working day and night, they still doubled as riflemen when needed.

No sooner had the Hagaru airstrip been completed when Colonel Lewis B. Puller ordered the enlargement of the strip at Munsan-Ni. The engineers of Company C, 1st Engineer Battalion, started this job on 6 December and on the next day the Company D engineers arrived from Hagaru with their heavy equipment to speed the job.

One of the key engineering jobs of the Chosin Reservoir Campaign was the installation of a bridge three and one-half miles south of Munsan-Ni.

This bridge made it possible for equipment, tanks, and trucks to be brought out with the division as it fought its way to the sea.

After the return of the 1st Division to South Korea, a vitally important mission performed by the 1st Engineer Battalion was the protection of the 75-mile main supply route, Pohang-Kyongju-Andong, from enemy guerrilla action. Later, it was the Marine engineers who provided the technical know-how, materials, and equipment to the infantry regiments for bunker construction on the Jamestown - Wyoming - Kansas defense lines in western Korea.

When the Chinese Communists suddenly agreed to an exchange of sick and wounded prisoners in March 1953, the Marine engineers were assigned the task of creating a reception center. Within 36 hours Marine construction engineers implemented "Operation Little Switch" by the construction of the entire Freedom Village at Munsan-Ni to handle nearly 700 returned prisoners. Following the signing of the Armistice Agreement in July 1953, Freedom Village was utilized for "Operation Big Switch" when 4,600 returning prisoners were processed.

Following the Korean War, the Marine Corps reevaluated its organization structure and arrived at new conclusions embodied in Landing Force Manual 13-Engineers, dated 11 April 1957. A distinction in functions was prescribed in this manual which assigned temporary type construction to the Fleet Marine Force engineer unit, while semipermanent or permanent construction would be performed by the naval mobile construction battalions.

The tasks of engineers in support of amphibious operations was spelled out in detail as follows:

- a. Obstacle breaching and clearance.
- b. Beach preparation.
- c. Engineer reconnaissance.
- d. Demolitions.
- e. Construction, repair, and maintenance of routes of communications.
- f. Construction, repair, and maintenance of advanced landing fields and supporting facilities.
- g. Water supply.
- h. Installation of obstacles, including mines and booby traps.
- i. Employment as infantrymen.
- j. Furnishing technical assistance and equipment for installation of amphibious assault bulk fuel handling system and tactical airfield fuel dispensing system.
- k. Other duties.

The contemplated organization for a Marine division included a division engineer section as a special staff section of division headquarters and a division engineer battalion consisting of a headquarters company, service company, and four engineer companies.

Of increasing importance has been the force engineer support requirements for air-ground task forces. It was expected that an air-ground task force of division-wing size would normally require one force engineer battalion, one naval mobile construction battalion, one bridge company, and one topographic company. Should the air-ground task force be doubled in size, the anticipated engineer requirements would be three force engineer battalions, two naval mobile construction battalions, two bridge companies, and one topographic company.

The mission assigned the FMF engineers as of 7 May 1963 "is to increase the combat effectiveness of the landing forces. This is done by providing essential engineer support to enable landing forces to break hostile beach defenses and proceed inland. Tasks of both a constructive and destructive nature are accomplished." The "units are organized to provide combat engineer support of a pioneer nature to assault units and to provide combat engineer support for the entire landing force."

They provide:

1. Support required for landing force operations.
2. Establishment and maintenance of advanced landing fields.
3. Establishment and maintenance of temporary camps.

Within a division, the engineer services are provided by the engineer battalion, engineer support units of the service battalion, and the engineer elements of the headquarters battalion.

The division engineer battalion normally consists of a headquarters and service company, an engineer support company, and three combat engineer companies. The battalion's prime mission "is to increase the combat effectiveness of the Marine division by rendering close combat engineer support of a pioneer nature."

Beefing up the engineer units which are a component part of a division are the force engineer units and elements that provide engineer support to the landing force. They include the engineer battalion, bridge company, topographic company, engineer support units of the material supply and maintenance battalion, and the headquarters and service battalion, force service regiment, and the bulk fuel company. The primary mission of the force engineer battalion is "to increase the combat effectiveness of the landing force by accomplishing general engineer missions of a deliberate nature." It consists of a headquarters company, a service company, and four engineer companies.

In addition to the engineer support of Marine ground troops, there are various small elements within the Marine aircraft wing which provide engineer-type support for that unit. Within the headquarters group some squadrons include a utilities unit. The assigned mission is to provide utilities and service such as power, water, and refrigeration.

A Marine air base squadron contains both a utilities unit and an engineer equipment unit in the motor transport section. The utilities platoon contains headquarters, construction, electrical, laundry, plumbing, water supply, and refrigeration sections. The engineer equipment unit consists of equipment operators, mechanics, and electricians. The unit is capable of limited construction and maintenance support (roads, clearing, grading, installation of drainage, etc.).

The organizational planning has not shown any drastic change since the FMF Manual of 1963, although we can expect each conflict to bring about changes to meet new conditions.

With the stepped-up Marine Corps participation in Vietnam in 1965 and the extended length of time Marine units have been deployed in one theater of operations, the need for Marine engineers has reached a high point in the history of the Corps.

Company C, 7th Engineer Battalion, arrived in Vietnam on 18 February 1965 to support the light antiaircraft missile (LAAM) batteries which had been sent to Da Nang. The commitment of large ground units organized as the 9th Marine Expeditionary Brigade (9th MEB) on 8 March required that engineers be included as a matter of course. Company C, 7th Engineer Battalion with two platoons of the 3d Engineer Battalion were designated as the Brigade Engineer Group.

The arrival of additional Marine units required a change in designation of the 9th MEB to the Third Amphibious Force (IIIIMAF), and on 6 May the Brigade Engineer Group was redesignated as the Force Engineer Group. The arrival of most of the 3d Marine Division at Da Nang brought additional companies of the 3d Engineer Battalion. On 20 May, the Force Engineer Group was redesignated the 3d Engineer Battalion (with Company C, 7th Engineers attached) with its normal mission as division engineers. The unit's mission was to perform direct engineering combat support operations for the infantrymen of the division. These operations ranged from the construction of pioneer roads to the clearing of mines and booby traps. Minor construction, repair, and the operation of water supply points fell within the scope of the battalion's activities.

The 3d Engineer Battalion established a special school in Land Mine Warfare and Demolition, soon nicknamed "The Pungi Palace." In less than a year from the opening of the school in September 1965 an estimated 5,000 Marines received instruction in the nature, operation, and avoidance of the enemy's numerous, ingenious booby traps.

A major task of the division engineers has turned out to be the construction of roads in this underdeveloped country. The weight and size of our mechanical equipment and our supply needs have made construction imperative. The term "pioneer roads" has been applied to the basic roads needed to shuttle troops and supplies to the front lines. First, paths are bulldozed through rice paddies, around homes, and through the jungle. To provide drainage, the roads are built up or elevated with dirt and rocks. Besides normal physical maintenance, it is necessary for each company to organize a mine team which makes daily checks to keep the roads and bridges free of mines. For direct combat support, each company also organized demolition teams for blowing up booby traps and cave or tunnel complexes. Before these last are destroyed, teams of engineers, better known as "tunnel rats," search the underground hideouts for supplies and Viet Cong.

A companion unit to the 3d Battalion has been the 7th Engineer Battalion, a force troops unit. Company C, 7th Engineers, which had been attached to the 3d Battalion since 1958, entered Vietnam with the 3d Engineer Battalion. Company A, 7th Engineer Battalion, entered Vietnam at Da Nang on 9 August 1965 where it also worked with the 3d Engineer Battalion. One platoon was sent to Chu Lai for the installation of helicopter pads and to give general support to Navy Construction Battalions.

The 7th Engineer Battalion (less Companies A and C) left San Diego on 6 August 1965 and by 26 August had unloaded at Da Nang Bay. The next day, elements of the 1st Bridge Company (attached to the 7th) put a river ferry in operation near Da Nang. Two days later, the ferry was being run on a 24-hour-a-day basis.

The mission of the 7th Engineer Battalion has been to augment the Division Engineer Battalion (the 3d) and to provide the engineer support to the rear of the 3d Engineers. Again the major task is road work, but the 7th Engineer Battalion improves upon the initial "pioneer" roads by widening and improves the surface and drainage. Making the 7th Engineer Battalion more effective is the attached 1st Bridge Company which has the capability of providing fixed or floating bridges capable of handling all the loads of the III Marine Amphibious Force.

A particular achievement of the 7th Engineer Battalion and the 1st Bridge Company in the summer of 1966 was the construction of a 1,478 foot floating bridge over the Da Nang River, the longest of its type built up to that time. Another achievement of the 7th Engineers in the summer of 1966 was the construction of a brick factory which made use of native laborers.

In the fall of 1966, Route 5, the main supply route south of Da Nang, was transformed from a trail into a two-lane road. The work was done by Company A, 7th Engineer Battalion, and Company A, 9th Engineer Battalion, attached. Ten miles were built within six weeks. Much of this work was done at night under the lights and with infantry cover.

Going into 1967, the 7th Engineer Battalion found itself with the responsibility of maintaining and keeping free from mines some 75 miles of roads. The Marines' civic action program was relying upon the brick factory and the continuance of MEDCAP, the program of medical aid and assistance to Vietnam citizens.

Other engineer units deployed to Vietnam as the Marine buildup continued. The 1st Engineer Battalion of the 1st Marine Division sailed from San Diego, California, on 22 August 1965 for Vietnam via Okinawa. Serving as division engineers for the 1st Division, its mission has been similar to that of the 3d Engineers for the 3d Division. Tasks for those engineers have included the construction of strongbacks for camps, road repairs, the destruction of mines, booby traps, tunnels, caves, and bunkers, and the provision of water.

The 9th Engineer Battalion was newly activated in November and December 1965 at Camp Pendleton, California. An advance detail left the States on 2 May 1966, followed by the remainder of the battalion on 16 May; it arrived at Chu Lai on 7 June 1966. Here the battalion joined the 1st Marine Division to serve as a combat support unit having multiple capabilities, including the construction of roads and permanent buildings.

Within 11 days after their arrival, the battalion made its first commitment in support of the 1st Marine Division. It was soon busy with roads and bridge work in anticipation of the

monsoons. Details were also assigned to the building and operation of cable-operated ferries, camp construction, crushing rock, and the providing of water.

Other engineering tasks performed by the battalion include clearing the omnipresent mines and in providing demolition teams. The nature of the warfare has required the assignment of men for convoy security (riding "shotgun") as well as giving direct support to the combat infantrymen. The 9th's duties have extended beyond the boundaries of the 1st Marine Division as it has also worked with the Korean Marine Brigade and the Korean Marine engineers in the Binh Son area.

One project of the 9th Engineer Battalion that best exemplifies one of the major missions of Marine engineers in Vietnam was the building of the "Dickey" Chapelle Memorial Dispensary in the Chu Lai New Life Hamlet to serve the Vietnamese people. The dispensary was named for a woman war correspondent killed near Chu Lai while with a Marine unit.

One of the newest engineer battalions of the Marine Corps, the 11th, was not activated until 1 June 1966 at Camp Pendleton, California. By late November it was on its way to Vietnam, assigned as further engineer support for the 3d Marine Division. The first elements arrived at Dong Ha on 1 December 1966.

One of its first tasks was the development of the base at Dong Ha. In spite of the heavy seasonal rains, the men built roads, dug wells, installed generators for electricity, and constructed defensive positions. By spring their efforts had made it possible for Dong Ha to function as the base of Marine operations in the Quang Tri province.

Working close to the demilitarized zone (DMZ), this battalion has been subjected to both infiltrators and enemy artillery fire. Within a year, this one battalion earned nearly 300 Purple Heart medals, certainly proof-positive of the dangerous duty of a combat Marine engineer. Individual bravery was no stranger as the first year also brought the award of two Silver Stars, three Bronze Stars, and three Navy Commendation Medals.

The connecting link from Highway 9 to Con Thien, known as Route 561, was transformed from virtually a trail to a two-lane, all-weather highway by the efforts of the 11th Engineer Battalion.

One unique project of this battalion was the construction of an asphalt plant under the superintendency of Gunnery Sergeant D. E. Gioffi. The plant as built had a production rate of 30 truckloads of asphalt a day for paving roads, helipads, and parking areas.

The nature of the war in Vietnam has made "combat engineers" of all the units as a clear distinction between front lines and the rear has never really existed. Yet to their essential

military duties has been added a new dimension which might be termed "engineering for peace." In the same manner as in Central America, the Caribbean islands, and in Korea in other days, the construction of roads, bridges, hospitals and dispensaries, public buildings, and the giving of assistance in water supply and sanitation under the Civic Action program have been effective tools in winning the support of the Vietnamese population. Never before have such extensive efforts been made to provide a better way of life for the friendly civilian population in the midst of war.

Doing all this and accomplishing a 24-hour-a-day, 365-day-a-year war, earns a "Well Done" for the Marine engineer.

HISTORICAL BRANCH, G-3 DIVISION
HEADQUARTERS, U. S. MARINE CORPS
April 1968

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